medical costs of elderly Americans are forecasted using the Future Elderly Model (FEM) – an established dynamic microsimulation model of health of Americans aged over 50. The change in the health and health care costs of obesity due to the introduction and widespread use of statins are estimated by introducing a scenario in which statins have not been discovered, using well-recognized estimates of the health impact of statins. **RESULTS:** Simulations reveal that the life expectancy of 50-year-olds with a healthy BMI (18.5-<25) is 0.92 year longer than it would be in a world without statins. Among the obese population, the life expectancy gains due to statins are of 1.00 year for type 1 obesity (BMI 30-<35), 1.05 year for type 2 obesity (BMI 35-<40) and 1.07 year for type 3 obesity (BMI≥40). These life expectancy gains augment the present value of per capita lifetime health care costs by $15,000 for individuals with a healthy BMI, $18,000 for type 1 obesity, $19,100 for type 2 obesity and $19,800 for type 3 obesity. About 33% of these costs are shouldered by the Medicare program. **CONCLUSIONS:** While the widespread use of statins is beneficial for individuals of all weight types, its health impact is highest among the obese population. Additional health care costs from statin use are small relative to the value of life expectancy gains, and mostly paid for by individuals.

PCV52

HEALTH CARE COSTS AND RESOURCE UTILIZATION IN WORKING AGE PATIENTS WITH HIGH RISK VASCULAR DISEASE: FINDINGS FROM A MULTI-EMPLOYER CLAIMS DATABASE

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OBJECTIVES: To assess the health care costs and resource utilization of patients with high risk vascular disease (HRVD). **METHODS:** A retrospective cohort study was conducted using a large employer-based U.S. administrative claims database. This study included patients aged 18 to 64 years who had HRVD (defined as cerebrovascular disease [CVD], coronary artery disease with diabetes [CADD], peripheral artery disease [PAD], or history of acute coronary syndrome [ACS] [>=30days through 365 days after discharge for ACS]) between 10/01/2008 and 09/30/2009, with minimum 12-month pre-index and 24-month post-index insurance eligibility. Annual health care costs and resource utilization were compared across HRVD patients with 1, 2, or 3 affected arterial beds for the first and second year follow-up periods. The comparison of mean costs between cohorts was conducted using a generalized linear model with log link function and gamma distribution. **RESULTS:** Of 152,290 patients who met the selection criteria, 54.4% were male with mean age 54.5(SD=7.5). Among the identified HRVD patients, during the first/second year, 6.8%/4.3% had ≥ 1 hospitalization event and 27.2%/21.5% had ≥ 1 ER visit. The mean annual number of physician office visits was 22/18 for the first and second year respectively. Mean total annual health care costs per HRVD patient for the first and second year were $19,003/$18,547, of which outpatient costs were $9,698/$8,530, inpatient costs were $6,286/$6,220, and pharmacy costs were $3,018/$3,797. HRVD-related costs during the first ($8,699) and second year ($7,925) accounted for close to half of the overall total health care costs. Mean total annual costs in the first and second year were $17,820/$17,501, $28,060/$26,554, and $39,306/$36,513 for patients with 1, 2, and 3 affected arterial beds (P<0.001). **CONCLUSIONS:** These results show the high economic burden of HRVD and the especially high economic burden associated with HRVD patients with multiple affected arterial beds.

PCV53

HEALTH CARE COSTS AND RESOURCE UTILIZATION IN ELDERLY PATIENTS WITH HIGH RISK VASCULAR DISEASE

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OBJECTIVES: To assess the health care costs and resource utilization of elderly patients with high risk vascular disease (HRVD). **METHODS:** A retrospective cohort study was conducted using the Truven MarketScan Medicare claims database to identify patients >=65 years, who had HRVD (defined as cerebrovascular disease [CVD], coronary artery disease with diabetes [CADD], peripheral artery disease [PAD], or history of acute coronary syndrome [ACS] [>=30days through 365 days after discharge for ACS]) between 10/01/2008 and 09/30/2009, with minimum 12-month pre-index and 24-month post-index insurance eligibility. Annual health care costs and resource utilization were compared across HRVD patients with 1, 2, or 3 affected arterial beds for the first- and second-year follow-up periods. The comparison of mean costs between cohorts was conducted using a generalized linear model with log link function and gamma distribution. **RESULTS:** The cohort included 203,949 patients with a mean age of 77.0 years; 52.8% were male. Among the identified HRVD patients during the first/second year, 7.3%/6.3% had ≥ 1 hospitalization event and 27.0%/23.2% had ≥ 1 ER visit. The mean annual number of physician office visits was 26/20 for the first and second year respectively. Mean total annual health care costs per HRVD patient for the first and second year were $17,899/$17,552, of which outpatient costs were $8,911/$6,861, inpatient costs were $5,296/$6,167, and pharmacy costs were $3,692/$4,525. HRVD-related costs during the first ($7,528) and second year ($7,565) accounted for more than 40% of the overall total health care costs. Mean total annual costs in the first and second year were $16,794/$16,631, $22,116/$21,096, and $26,575/$24,556 for patients with 1, 2, and 3 affected arterial beds (P<0.001). **CONCLUSIONS:** These results show the high economic burden of HRVD and the especially high economic burden associated with elderly HRVD patients with multiple affected arterial beds.

PCV54

EVALUATION OF THE BURDEN OF GENERAL CARDIOVASCULAR DISEASE AMONG UNITED STATES MEDICARE PATIENTS

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OBJECTIVES: To evaluate the economic burden and health care utilization of general cardiovascular disease (CVD) patients in the U.S. Medicare population. **METHODS:** A retrospective database analysis was conducted using Medicare data (2008-2010). General CVD patients were identified using myocardial infarction (International Classification of Disease, 9th Revision, Clinical Modification [ICD-9-CM] codes 410.xx, 412.xx), unstable angina (411.1x, 411.81, 411.89), ischemic stroke (434.xx, 436.xx, 437.0x, 437.1x, 438.xx, 997.02), transient ischemic attack (435.xx), heart failure (428.xx) and percutaneous coronary intervention (ICD-9 procedure codes 00.66, 36.09). The first diagnosis date was designated as the index date. One-year continuous enrollment pre- and post-index date was required. Charlson Comorbidity Index (CCI) score and comorbid conditions were examined for the baseline period. Prescribed medications were evaluated within 60 days post-diagnosis. Health care utilization and costs were measured for the follow-up period. **RESULTS:** A total of 203,865 patients were identified for study (mean age 78.9 years). CVD patients were more often female (60.7%), Caucasian (86.0%) and resided in the Southern U.S. region. (39.5%). The baseline CCI score was 1.86, and the most frequently diagnosed comorbid conditions were diabetes (32.8%), tumor (31.0%) and chronic obstructive pulmonary disease (25.6%). Furosemide (13.6%) was most often prescribed within 60 days after diagnosis, followed by simvastatin (11.4%) and lisinopril (10.6%). Health care utilization including Medicare carrier (98.3%), Durable Medical Equipment (DME, 43.9%), Home Health Agency (HHA, 25.6%), outpatient visits (80.5%) and inpatient hospital (52.8%), Skilled Nursing Facility (SNF, 17.7%) and hospice admissions (8.4%) and prescription claims (54.4%) were observed for the follow-up period. CVD patients incurred higher Medicare carrier ($5,679), DME ($534), HHA ($1,506), outpatient ($16,455), inpatient ($12,230), SNF ($3,489), hospice ($822), pharmacy ($1,818) and total costs ($42,533). **CONCLUSIONS:** General CVD Medicare patients utilized a high percentage of Medicare carrier, outpatient and inpatient utilizations, and incurred high health care expenses.

PCV55

HEALTH CARE COSTS ASSOCIATED WITH ACUTE CARDIOVASCULAR EVENTS IN A COPD PATIENT POPULATION

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OBJECTIVES: Cardiovascular (CV) disease significantly contributes to morbidity and mortality in chronic obstructive pulmonary disease (COPD) patients; however, the economic burden of acute CV events in this population is still unknown. Our objective was to estimate the direct medical costs associated with the development of acute CV events in patients with COPD. **METHODS:** We identified patients with a COPD diagnosis (ICD-9 491.x, 492.x, 496.x) between 2005-2010 in the IMS LifeLink Health Claims Database. Patients experiencing an incident CV event (MI, ACS, CHF, arrhythmia, or stroke) resulting in an ER visit or inpatient admission (case index) were matched to up to 3 controls on age, region, gender, year of COPD diagnosis, and time between COPD diagnosis and index date. Mean costs (total, inpatient, outpatient, and pharmacy) in the 12 months before and after the case index and control index were compared, with total costs attributable to the incident CV event determined by using a difference in differences regression to adjust for patient comorbidities. **RESULTS:** Among 9,537 case and 26,128 control patients, the average age was 69.1 years and 51% were male. Hypertension, diabetes, and coronary atherosclerosis were the most prevalent comorbidities. Total costs were $27,300 and $15,016 (pre-index), and $51,468 and $15,596 (post-index) for cases and controls, respectively. Regression analysis resulted in an adjusted difference in differences value of $23,601 (p<0.001). As a percentage of total costs, pharmacy and outpatient costs decreased between the pre-index and post-index periods (13% to 8% and 28% to 22%), while inpatient costs increased (59% to 69%); percentages for control patients remained unchanged. **CONCLUSIONS:** The development of acute CV events in COPD patients is associated with a large increase in direct medical costs, predominantly driven by inpatient costs. Interventions aimed at reducing the incidence of acute CV events in this population are needed to mitigate overall cost burden.

PCV56

EVALUATION OF HOSPITAL RESOURCE UTILIZATION ASSOCIATED WITH MAJOR ADVERSE CARDIOVASCULAR EVENTS

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OBJECTIVES: This study evaluated the hospital resource utilization associated with major adverse cardiovascular events (MACE) in the United States (US) from 2000 to 2010, overall and by type of event. Of special interest was the rate of death during MACE-related hospitalizations. **METHODS:** The Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) database was used to estimate the annual rates of MACE-related hospitalization for adults aged at least 18 years per 100,000 adults as well as per 100,000 adult hospitalizations in the US from 2000 to 2010 using NIS sampling weights and yearly US Census population information. Additionally, average MACE-related per-hospitalization costs (standardized to 2013 USD) and length of stay (LOS) estimates were calculated for each year. MACE-related hospitalizations were identified as those with a primary discharge diagnosis of acute myocardial infarction (AMI), stroke, or cardiac arrest. **RESULTS:** Rates of MACE-related hospitalization have steadily decreased over time from 685 to 525 per 100,000 adults and from 4,650 to 3,611 per 100,000 hospitalizations among adults in the US from 2000 to 2010. The percentage of MACE-related hospitalizations resulting in death also decreased from 7.5% in 2000 to 5.3% in 2010. During this period, the AMI-related stays accounted for the largest percentage of MACE-related hospitalizations (51.2%-55.5%), followed by stroke-related (43.9%-48.2%), and cardiac arrest-related (0.5%-0.7%) stays. The mean (standard deviation [SD]) LOS for MACE-related hospitalizations decreased from 5.4 (6.7) days in 2000 to 4.7 (5.5) days in 2010. However, the mean (SD) costs per MACE-related hospitalization increased from $18,389 ($25,244) in 2000 to $28,629 ($35,008) in 2010. **CONCLUSIONS:** Hospitalization and inpatient fatality rates, as well as LOS per hospitalization associated with MACE have decreased, while costs per MACE-related hospitalization have risen in the US between 2000 and 2010. Further research may elucidate the drivers of these directionally opposing trends.

PCV57
THE VARIABLE COST OF AN OPERATING ROOM MINUTE FOR VALVULAR PROCEDURES
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OBJECTIVES: Few studies have attempted to quantify the costs of operating room (OR) time. The purpose of this study is to quantify the variable cost per OR minute in isolated non-robotic valvular procedures – aortic valve replacement (AVR), mitral valve replacement (MVR), and mitral valve repair (MVRepair). **METHODS:** The Premier database, one of the most comprehensive hospital databases, was queried from 2007 to 2011 for patients undergoing AVR, MVR, or MVRepair. This database contains complete billing, hospital cost, and coding data from >600 US facilities. Patients were identified using the following International Classification of Diseases 9th Revision (ICD-9) procedure codes: AVR 35.21, 35.22; MVR 35.23, 35.24; and MVRepair 35.12. Patients having coronary artery bypass grafting were excluded. The surgical approaches, right thoracotomy (RT) and any sternal incision, were identified for each patient with expert clinical assistance. Patients with right thoracotomy were then propensity score matched to patients with any sternal incision, adjusting for patient differences. Premier classified variable costs of the OR into three categories; staff for the surgery room, anesthesia, and recovery room. Outliers were identified based on the cost per minute of the procedure. The top and bottom five percent were removed. All costs were adjusted to 2012 dollars using the Medical Care Component of the Consumer Price Index. **RESULTS:** There were 2,657 valvular procedures - 1,604 AVR, 434 MVR, and 619 MVRepair - that met the inclusion criteria. The average cost per OR minute was $28.5 (95% CI $28.1 - $28.9) for all procedures, and $27.8 (95% CI $27.3 – $28.3), $31.7 (95% CI $29.5 - $31.9), $28.7 (95% CI $27.9 - $29.5) for AVR, MVR, and MVRepair, respectively. **CONCLUSIONS:** Quantifying the variable cost of an OR minute from a multi-institution database provides researchers with an important component to use in economic evaluations for valvular procedures.

PCV58
COMPARISON OF ANNUAL COST AND RESOURCE UTILIZATION FOR HEART FAILURE PATIENTS IN SOUTH KOREA: BETWEEN 2009 AND 2011
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OBJECTIVES: The purpose of this study was to find the trends in total medical expenditure and utilization patterns of medical resource for heart failure inpatients between years of 2009 and 2011. **METHODS:** Heart failure patient was defined as the one with I50, which is the primary diagnosis ICD-10 code. Patients were identified from the Korea National Health Insurance Claim's Sample data in Health Insurance Review & Assessment Service (HIRA_NIS data) of 2009 (Serial Number: HIRA_NPS_2009-0071) and 2011 (Serial Number: HIRA_NIS_2011-0067). The HIRA_NIS data contain 13% of overall inpatient and 1% of ambulatory patient data including medical costs and resource utilizations of the patients in Korea (about 1.1 million persons per year). The estimated number of total researched patients were 7,410 in 2009, comprised of 2,571 inpatients and 6,010 outpatients. In 2011, the estimated number of patients were 8,557; 2,803 inpatients and 7,189 outpatients. **RESULTS:** The average medical expenditure per inpatient with heart failure had increased to 14.9% between two years. For all types of hospitals studied, university hospital, general hospital, and secondary hospital, the medical cost per inpatient had increased. The length of hospitalization had increased to 8.4% in 2011 compared with 2009. In both years, essential hypertension and arterial fibrillation & flutter were the most prevalent secondary diseases for heart failure inpatients, followed by non-insulin-dependent diabetes mellitus in 2009 and angina pectoris in 2011. **CONCLUSIONS:** Heart failure was a serious disease in terms of the medical expenditure for treatment and the length of hospitalization in both years. The medical expenditure was increasing with time. Considering this trend, it can be expected that the economic burden for patients, hospitals, and the health care system will continuously be increased.

PCV59
THE PREVALENCE AND HEALTH CARE EXPENDITURES ASSOCIATED WITH ANTIHYPERLIPIDEMIC DRUGS
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OBJECTIVES: High cholesterol is one of the major risk factors for coronary heart disease. The objectives of this study were to examine the prevalence of antihyperlipidemic agents use, and provide estimates of the associated outpatient prescription drug utilization and expenditure. **METHODS:** A cross-sectional study was conducted using data from the Medical Expenditure Panel Survey (MEPS) between 2002 and 2010. Subjects were derived from U.S. civilian and non-institutionalized population diagnosed with hyperlipidemia. A series of descriptive analyses were performed to estimate the weighted prevalence, utilization, and expenditures for the hyperlipidemic patients who received any FDA-approved lipid lowering agent. SAS 9.3 statistical software was used for all analyses including sample weights and standard error adjustments. **RESULTS:** The study findings indicated the patients diagnosed with hyperlipidemia increased from 17 million to 41 million between 2002 and 2010. Among these, 94.1% in 2002 vs. 87.8% in 2010 of the patients received antilipidemic drugs. However, the utilization of total lipid lowering agents increased from 96 million in 2002; to 149 million in 2005; then to 231 million in 2010. The drug expenditures showed a significant increase by $12 billion rising from $11.7 billion in 2002 to $22.8 billion in 2010. **CONCLUSIONS:** Despite the prevalence of a noted increase of treatment, utilization and expenditures for those diagnosed with hyperlipidemia, there exists a large population of people who remain untreated. The study results indicate that further research is needed to improve treatment of hyperlipidemia as well as assessing the impact on costs and health care outcomes from untreated patients over time.

PCV60
COSTS OF ACUTE HEART FAILURE IN SOUTH KOREA
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OBJECTIVES: The purpose of this study was to find the total medical expenditure and utilization of trends in medical resource for patients hospitalized and diagnosed with heart failure. **METHODS:** : Heart failure patients were identified from the Korean HIRA_NIS Data (National Health Insurance Claims' Sample data) of 2011, provided by Health Insurance Review & Assessment Service (HIRA) in South Korea. Heart failure inpatient was defined as the one whose primary diagnosis ICD-10 code is I50. The analysis of relations between total medical expenditure and possible variables are processed through regression analysis. **RESULTS:** The average medical cost per inpatient with heart failure was KRW 3,167,969 (USD 2,970.16). The medical cost per inpatient showed KRW 3,627,711 (USD 3,401.19) KRW 2,500,556 (USD 2,344.42) KRW 1,668,074 (USD 1,563.92) in the university hospitals, general hospitals, and secondary hospitals, respectively. The number of visit to hospital for each patient was 1.7 times per year. The average hospital stay for inpatient was 24.6 days. The essential hypertension, arterial fibrillation and flutter, and angina pectoris were ranked to be the most prevalent secondary disease for heart failure in-patients. According to the result of multivariate regression analysis, with observation of 8,557 heart failure inpatients, factors including the age of 40 and over, male, visit days and renal impairment showed a significant increase in total medical expenditure. Especially, renal impairment was the largest impact on the increase in treatment cost of heart failure (coefficient=2,831,614 SD 123,951, p<0.001). **CONCLUSIONS:** Although extra billing cost could not be identified with NHI claims data, this analysis suggests that heart failure is a considerable disease with great medical expenditure. In consideration of total medical expenditure, it can be expected that patients, hospitals, and national health care department are currently in severe economic burden.

PCV61
THE DAVIRAD STUDY: EVALUATION OF ECONOMIC AND MEDICAL CONSEQUENCES OF LEFT VENTRICULAR ASSISTED DEVICE IN SEVERE HEART FAILURE IN FRANCE
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OBJECTIVES: Advanced heart failure (HF) is a leading cause of death in developed countries. One to two percent of the French population is affected by this disease. It also causes a substantial economic burden on society and cost 1.6 billion euros per year in France. Usually, cardiac transplantation is the most effective treatment. However, because of a limited donor organ supply, innovative technics as left ventricular assist devices (LVAD) were developed for over 10 years. This study aims to assess the medical and economic consequences of LVAD in adults with advanced HF in France during one year after LVAD implantation. **METHODS:** The primary medical outcome was the discharge to the patient's home. Secondary medical outcomes were defined as final situation of patient, survival, dependence and quality of life (QOL) assessed with the SF-36 and the Minnesota QOL questionnaires. This prospective economic analysis adopted the health care payer's perspective and took into account direct medical and non-medical costs. **RESULTS:** Among the 55 patients included, 37 were discharged at home during an average of 140 days. At one year, 23 patients were still on device and spent 238 days at home, 15 were transplanted and spent 132 days at home and 17 were died and spent 13 days at home. The mean total cost per implanted patient was 164,154±37,104€. Costs drivers were the device (58%) and initial hospitalization (30%). The cost of at home care was 6,084±6,738€ accounting for only 4% of total cost. According to the health care payer's perspective, one day spent at home costs 44€. Survival, QOL and dependence analyses are being processed. **CONCLUSIONS:** Continuous- flows LVAD represent a costly strategy in the HF treatment but allow the patient to be discharged at home instead of awaiting heart transplantation at hospital.

PCV62
INTRA-HOSPITAL COST OF IMPLANTING A LEFT VENTRICULAR ASSISTANCE DEVICE: A CANADIAN PERSPECTIVE
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OBJECTIVES: To identify the total in-hospital cost associated with the index hospitalization for the implantation of a left ventricular assistance device (LVAD) in a Quebec, Canada setting. **METHODS:** A retrospective patient chart review was conducted in all 3 hospital centers with an active LVAD program to identify all patients who underwent LVAD implantation between January 1st 2010 and December 31st2013. The costing evaluation had 4 distinct components: 1) LVAD acquisition cost; 2) implantation procedure cost; 3) hospital stay cost; and 4) inpatient drug costs. The average cost per patient was calculated. All costs were actualized to 2013 $CDN values. **RESULTS:** A total 65 LVAD-implanted patients were identified between 2010 and 2013. The majority of these patients were male (n=49 [75.4%]) and the average was 52.2 years old (SD 14.2). Patient-specific costing was completed for 17 of these patients. Average index hospitalization stay was 64 days (range 11-140). Average per patient cost was $157,073 (range $115,911-222,933). **CONCLUSIONS:** This is the first province-wide evaluation of the cost of the index hospitalisation for LVAD implantation. These results should inform the decision-making process related to future resource allocation for the province's LVAD program.